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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,754	03/27/2001	Byung-in Ma	1293.1196	7872

21171 7590 03/15/2004

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EXAMINER	
PATEL, GAUTAM	

ART UNIT	PAPER NUMBER
2655	10

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,754	MA ET AL.	
	Examiner	Art Unit	
	Gautam R. Patel	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment:

1. This is in response to amendment filed on 2-9-04 (Paper # 9).

2. Claims 1-6 remain for examination.

Claim Rejections - 35 U.S.C. § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1 is rejected under 35 U.S.C. § 102(e) as being anticipated by AAPA [Applicants Admitted Prior Art].

As to claim 1, AAPA discloses the invention as claimed [see Figs. 1-2] including a light dividing unit, an optical detector unit, a first optical detector, a second optical detector, a signal processing portion, and a generator generating a seek direction, comprising:

a light dividing unit [inherently present when main beam and sub-beams are involved] dividing an incident light beam into at least two beams including a main beam and a sub-beam so that at least two beam spots including a main beam spot and at least one sub-beam spot having an optical aberration, can be focused in a track direction of an optical disk, wherein a direction of the optical aberration of the sub-beam spot is a tangential direction of the optical disk [spec. Pgs. 1-3];

an optical detector unit including [fig. 2]:

a first optical detector [fig. 2, unit 2a] receiving the main beam, and converting the portions of the received beam into electrical signals independent of each other; and

a second optical detector [fig. 2, unit 2b & 2c] receiving the sub-beam, and converting the portions of the received beam into electrical signals independent of each other, wherein the first and second optical detectors comprise a plurality of light receiving portions;

a signal processing portion [fig. 2, units 3-6 including:

a first signal processing portion [fig. 2, unit 3] processing a track error signal from the signals output from the first optical detector; and

a second signal processing portion [fig. 2, unit 4 & 5] processing a track cross signal-from the signals output from the second optical detector; and

a generator generating [fig. 2, unit 6] a seek direction detecting signal from the phase difference between the track cross signal and the track error signal [specification page 1-3].

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA as applied to claim 1 above and in view of Watabe, US. patent 6,147,952 (hereafter Watabe).

AAPA discloses all of the above elements, including an optical detector with six portions used in his system. AAPA does not specifically disclose that the second optical detector is divided at least into six portions.

However, it is well known in the art that most present detectors divided into eight or more portions for certain operation processing with respect to the output signals corresponding to a plurality of light receiving segments. Also Watabe clearly discloses:

the second optical detector are divided into at least three portions in a direction corresponding to the radial direction of the optical disk, is divided into two portions in a direction corresponding to the tangential direction of the optical disk, where the light receiving portions include at least six separate areas [fig. 8D and col. 12, lines 11-46].

Both AAPA and Watabe are interested in improving signal processing of the light reflected back from the disk. Both AAPA and Watabe show tracking error signal and focusing error signal correction mechanism with the help of signal received from the disk.

One of ordinary skill in the art at the time of invention would have realized that adequate modification of the configuration of the photodetector is necessary for certain operational processing corresponding to the plurality of light receiving segments. Therefore, it would have been obvious to have used a second optical detector which is divided into six portions with three portions in the radial directions and two portion in the tangential direction of the optical disk in the system of AAPA as taught by Watabe because one would be motivated to provide a proper and adequate configuration for both tracing error signal and focusing error signal in system with plural light receiving segments [col. 10, lines 8-16; Watabe], and one also would be motivated to reduce cost and size of the disk by providing a single photodetector with several segments rather than providing several different photodetectors [col. 12, lines 40-46; Watabe].

5. As to claim 3, Watabe discloses:

a first light receiving portion having a first outer light receiving portion, and a first inner light receiving portion, which are divided in a direction corresponding to the radial direction of the optical disk;

a second light receiving portion having a second outer light receiving portion, and a second inner light receiving portion, which are disposed to neighbor the first light receiving portion and in the direction corresponding to the tangential direction of te optical disk;

a third light receiving portion having a third outer light receiving portion, and a third inner light receiving portion, which are disposed to neighbor the second light receiving portion; and

a fourth light receiving portion having a fourth outer light receiving portion, and a fourth inner light receiving portion which are disposed to neighbor the first and third light receiving portions [fig. 8D and col. 12, lines 11-46].

6. As to claim 4, Watabe discloses:

each widths of the first, second, third, and fourth inner light receiving portions is smaller than a radius of an incident beam spot focused on the optical detector [col. 3, lines 9-12].

7. As to claim 5, Watabe discloses all of above limitations. Although Watabe does not specifically disclose that a sum of the widths of the second and third inner light receiving portions in the same direction are each 0.2 to 0.8 times the diameter of an incident beam. Watabe clearly teaches that the widths are smaller. The limitations in claim 5 does not define a patentable distinct invention over that in Watabe since both the invention as a whole and Watabe are directed to processing signals with multiple segmented photodetector. The degree in which the sum of the widths of the second and third inner light receiving portions is smaller times the diameter of an incident beam presents no new or unexpected results, so long as the data processing of the beam is done in a successful way. If one needs tighter control smaller size is used if one needs

lenient control bigger size is used. Therefore, to have the sum of the widths of the second and third inner light receiving portions in the same direction are each 0.2 to 0.8 times the diameter of an incident beam would have been routine experimentation and optimization in the absence of criticality.

8. As to claim 6, Watabe discloses:

when the sum signal of signals output from the first and fourth inner light receiving portions is S(A2+D2), the sum signal of signals output from the second and third outer light receiving portions is S(B1+C1), the sum signal of signals output from the first and fourth outer light receiving portions is S(A1+D1), and the sum signal of signals output from the second and third inner light receiving portions is S(B2+C2), the second signal processing portion comprises:

a first summing amplifier [fig. 7, unit 24a] summing the signal S(A2+D2) and the signal S(B1+C1), and outputting a signal S1;

a second summing amplifier [fig. 7, unit 24b] summing the signal S(A1+D1) and the signal S(B2+C2), and outputting a signal S2; and

a differential amplifier [fig. 7, unit 25] differentiating the signals S1 and S2, and outputting a track cross signal [fig. 7 input signa to unit 26], and

the second signal processing portion [fig. 7, unit 26] is adapted to generate a seek direction detecting signal by using the phase difference between the track cross signal output from the differential amplifier and the track error signal output from the first signal processing portion [col. 9, line 26 to col. 10, line 7].

9. Applicant's arguments filed on 2-9-04 (Paper # 9) have been fully considered but they are not deemed to be persuasive for the following reasons.

10. In the REMARKS, the Applicant argues as follows:

A) That: " Watabe is silent as to teaching or suggesting, "a generator generating the seek direction detecting signal from a phase difference between the track cross signal and the track error signal from a phase difference between the track cross signal

and the track error signal," as recited in independent **claim 1** [emphasis added]." [page 9, para. 6; REMARKS].

FIRST : The Applicants are correct that Watabe may not have generator generating seek direction in claim 1. However claim 1 does NOT use Watabe at all. Claim 1 is rejected based on AAPA.

SECOND: Seek generators are well known in the art, as shown in the background art presented by the Applicants.

1. **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.

Gautam R. Patel
Primary Examiner
Group Art Unit 2655

March 11, 2004